

# **Computer Network Lab**



## **LAB WORK # 07**

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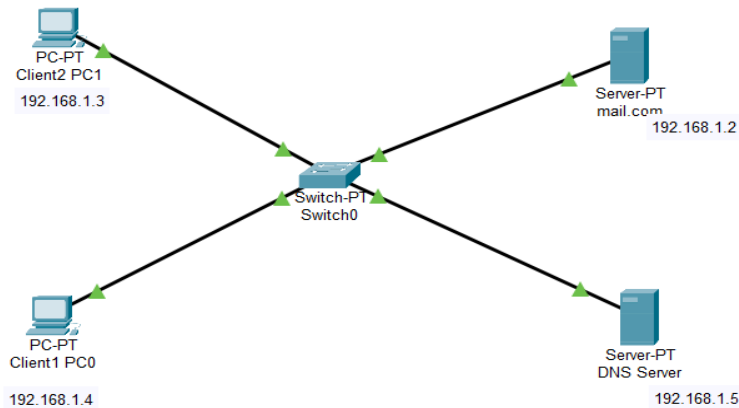
**DEPARTMENT OF COMPUTER SCIENCE**  
**FAST NATIONAL UNIVERSITY OF COMPUTER**  
**AND EMERGING SCIENCES, PESHAWAR**

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### Task 1: Build the network topology

#### 2. Configure IP addresses on the PCs, DNS Server and the Mail Server

- Mail Server IP address: 192.168.1.2
- PC0 IP address: 192.168.1.4
- PC1 IP address: 192.168.1.3
- DNS server IP address: 192.168.1.5



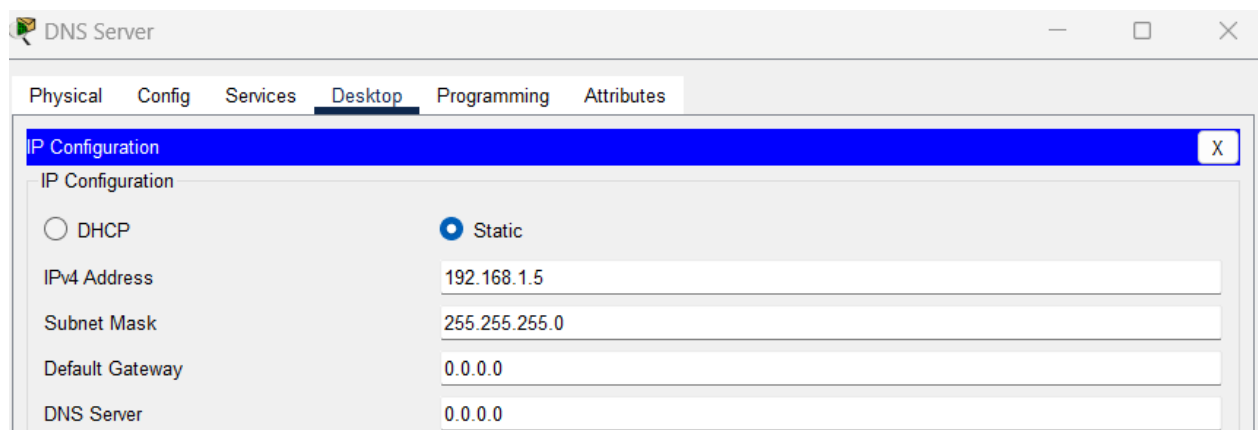
#### DNS Server :

##### ->configure the email server:

Provide the Domain name of the server then click on Set to set it. In this example I've used the name 'mail.com'.

Proceed and add users and provide their passwords. I have two email clients(users) with usernames 'Client1' and 'Client2' with a password 'Client1' and 'Client2'

After entering a username and password, click on Add(+) to add the user to the server. You can optionally remove a user by clicking on Remove (-). You can change a user's password by clicking on change password.



DNS Server

PhysicalConfigServicesDesktopProgrammingAttributes

SERVICES

HTTP

DHCP

DHCPv6

TFTP

DNS

SYSLOG

AAA

NTP

EMAIL

FTP

IoT

VM Management

Radius EAP

DNS

DNS Service ☒ On ☐ Off

Resource Records

Name

Type

A Record

Address

Add

Save

Remove

No.	Name	Type	Detail
0	Client1	A Record	192.168.1.4
1	Client2	A Record	192.168.1.3
2	mail.com	A Record	192.168.1.2

Mail server:

mail.com

PhysicalConfigServicesDesktopProgrammingAttributes

IP Configuration

IP Configuration

☐ DHCP

☒ Static

IPv4 Address

192.168.1.2

Subnet Mask

255.255.255.0

Default Gateway

0.0.0.0

DNS Server

192.168.1.5

IPv6 Configuration

**PC 0 :** Configure mail clients on the PCs and mail service on the generic server.

### Mail Clients:

Click on PC0. Go to its Desktop tab, and click on Email. Configure the email client by filling in the user, server and login information.

Client1 PC0

Physical Config **Desktop** Programming Attributes

**Configure Mail** X

User Information

Your Name: Client1

Email Address: Client1@mail.com

Server Information

Incoming Mail Server: mail.com

Outgoing Mail Server: mail.com

Logon Information

User Name: Client1

Password: .....

Save Remove Clear Reset

### Mail sent and reply :

Client1 PC0

Physical Config **Desktop** Programming Attributes

**MAIL BROWSER** X

Mails

Compose Reply Receive Delete Configure Mail

	From	Subject	Received
1	Client2@mail.com	RE: CN lab 6 test 1	Thu Oct 12 2023 10:28:13
2	Client2@mail.com	lab1 sent	Thu Oct 12 2023 10:26:11
3	Client1@mail.com	CN lab 6 test 1	Thu Oct 12 2023 10:22:00
4	Client1@mail.com	CN lab 6 test 1	Thu Oct 12 2023 10:21:33

RE: CN lab 6 test 1  
Client2@mail.com  
Sent : Thu Oct 12 2023 10:28:13

Test is success full

---

Subject : CN lab 6 test 1  
From : Client1@mail.com  
Sent : Thu Oct 12 2023 10:22:18

Test 1 is send

## PC 1:

Client2 PC1

Physical Config **Desktop** Programming Attributes

**Configure Mail** X

User Information

Your Name: Client2

Email Address: Client2@mail.com

Server Information

Incoming Mail Server: mail.com

Outgoing Mail Server: mail.com

Logon Information

User Name: Client2

Password: .....

Save Remove Clear Reset

Try to see whether the email from PC0 is received on PC1. On the email client of PC1, click on Receive.

If everything is well set up, the email from PC0 will be received on PC1.

Client2 PC1

Physical Config **Desktop** Programming Attributes

**MAIL BROWSER** X

Mails

Compose Reply Receive Delete Configure Mail

	From	Subject	Received
1	Client1@mail.com	CN lab 6 test 1	Thu Oct 12 2023 10:22:18

CN lab 6 test 1  
Client1@mail.com  
Sent : Thu Oct 12 2023 10:22:18

Test 1 is send

Reply test :

Client1 PC0

Physical Config **Desktop** Programming Attributes

Reply Mail X

Send To: Client2@mail.com

Subject: RE: RE: CN lab 6 test 1

check the task 2 and sent the email

---

Subject : RE: CN lab 6 test 1  
From : Client2@mail.com  
Sent : Thu Oct 12 2023 10:28:13

Test is success full

---

Subject : CN lab 6 test 1  
From : Client1@mail.com  
Sent : Thu Oct 12 2023 10:22:18

Test 1 is send

The test 2 is success full work :

Client2 PC1

Physical Config **Desktop** Programming Attributes

MAIL BROWSER X

Mails

Compose Reply Receive Delete Configure Mail

	From	Subject	Received
1	Client1@mail.com	RE: RE: CN lab 6 test 1	Thu Oct 12 2023 10:52:47
2	Client1@mail.com	CN lab 6 test 1	Thu Oct 12 2023 10:22:18

RE: RE: CN lab 6 test 1  
Client1@mail.com  
Sent : Thu Oct 12 2023 10:52:47

check the task 2 and sent the email

---

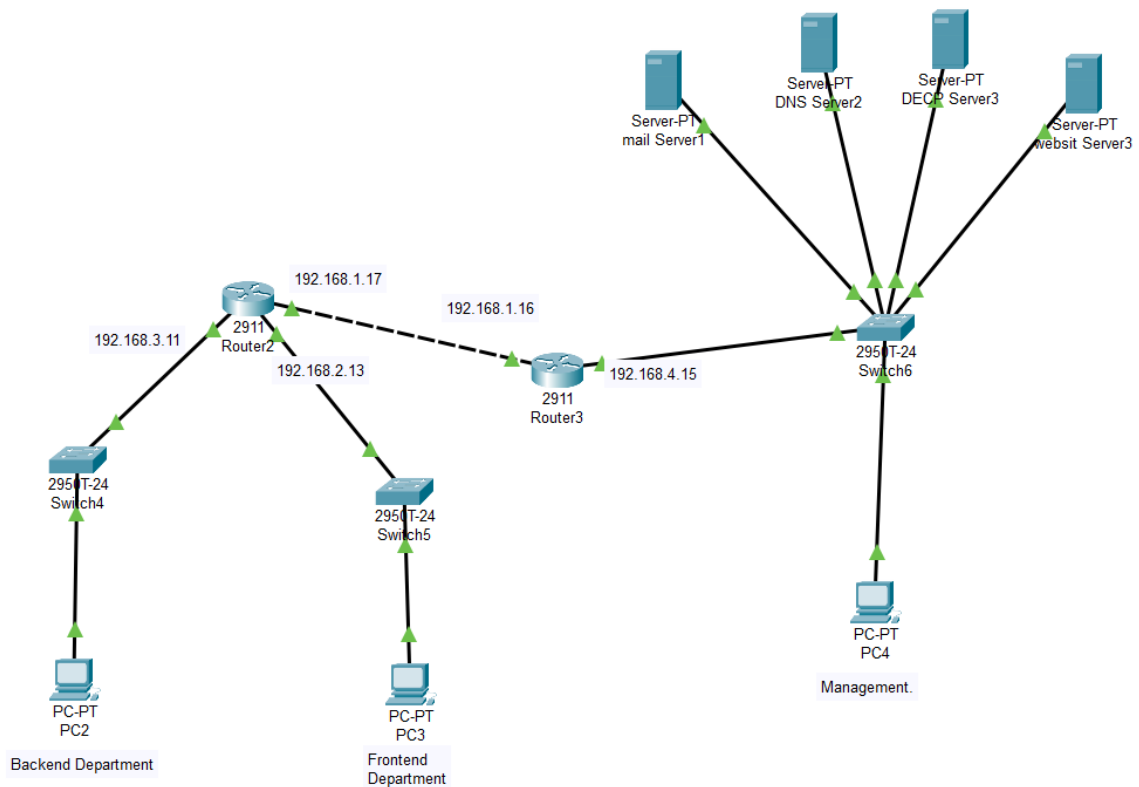
Subject : RE: CN lab 6 test 1  
From : Client2@mail.com  
Sent : Thu Oct 12 2023 10:28:13

Test is success full

Receiving mail from POP3 Server mail.com  
DNS resolving. Resolving name: mail.com by querying to DNS Server:  
255.255.255.255 DNS resolved ip address: 192.168.1.2  
Receive Mail Success.

Cancel  
Send/Receive

## TASK 2 : Build the network topology



## Router ip :

Router2

Physical Config CLI Attributes

**GLOBAL**  
Settings  
Algorithm Settings  
**ROUTING**  
Static  
RIP  
**SWITCHING**  
VLAN Database  
**INTERFACE**  
GigabitEthernet0/0  
GigabitEthernet0/1  
GigabitEthernet0/2

**GigabitEthernet0/0**  
Port Status ☒ On  
Bandwidth ☐ 1000 Mbps ☐ 100 Mbps ☐ 10 Mbps ☒ Auto  
Duplex ☐ Half Duplex ☒ Full Duplex ☒ Auto  
MAC Address 0090.0CC9.5801  
IP Configuration  
IPv4 Address 192.168.1.17  
Subnet Mask 255.255.255.0  
Tx Ring Limit 10

Router2

PhysicalConfigCLIAttributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

GigabitEthernet0/0

GigabitEthernet0/1

GigabitEthernet0/2

GigabitEthernet0/1

Port Status

☐ 1000 Mbps

☒ 100 Mbps

☐ 10 Mbps

☒ On

Bandwidth

☐ Half Duplex

☒ Full Duplex

☒ Auto

MAC Address0090.0CC9.5802

IP Configuration

IPv4 Address192.168.3.11

Subnet Mask255.255.255.0

Tx Ring Limit10

Router2

PhysicalConfigCLIAttributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

GigabitEthernet0/0

GigabitEthernet0/1

GigabitEthernet0/2

GigabitEthernet0/2

Port Status

☐ 1000 Mbps

☒ 100 Mbps

☐ 10 Mbps

☒ On

Bandwidth

☐ Half Duplex

☒ Full Duplex

☒ Auto

MAC Address0090.0CC9.5803

IP Configuration

IPv4 Address192.168.2.13

Subnet Mask255.255.255.0

Tx Ring Limit10

Router3

PhysicalConfigCLIAttributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

GigabitEthernet0/0

GigabitEthernet0/1

GigabitEthernet0/2

GigabitEthernet0/0

Port Status

☒ 1000 Mbps

☐ 100 Mbps

☐ 10 Mbps

☒ On

Bandwidth

☐ Half Duplex

☒ Full Duplex

☒ Auto

MAC Address000A.419D.2A01

IP Configuration

IPv4 Address192.168.1.16

Subnet Mask255.255.255.0

Tx Ring Limit10



Router3

PhysicalConfigCLIAttributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

GigabitEthernet0/0

GigabitEthernet0/1

GigabitEthernet0/2

GigabitEthernet0/2

Port Status

On

Bandwidth

1000 Mbps

100 Mbps

10 Mbps

Duplex

Half Duplex

Full Duplex

MAC Address000A.419D.2A03

IP Configuration

IPv4 Address192.168.4.15

Subnet Mask255.255.255.0

Tx Ring Limit10

## Static:

Router2

PhysicalConfigCLIAttributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

GigabitEthernet0/0

GigabitEthernet0/1

GigabitEthernet0/2

Static Routes

Network

Mask

Next Hop

Add

Network Address

192.168.4.0/24 via 192.168.1.16

Router3

PhysicalConfigCLIAttributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

GigabitEthernet0/0

GigabitEthernet0/1

GigabitEthernet0/2

Static Routes

Network

Mask

Next Hop

Add

Network Address

192.168.3.0/24 via 192.168.1.17

192.168.2.0/24 via 192.168.1.17

## Mail server:

mail Server1

Physical Config Services **Desktop** Programming Attributes

IP Configuration X

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.4.16

Subnet Mask 255.255.255.0

Default Gateway 192.168.4.15

DNS Server 192.168.1.17

IPv6 Configuration

## DNS Server :

DNS Server2

Physical Config Services **Desktop** Programming Attributes

IP Configuration X

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.1.17

Subnet Mask 255.255.255.0

Default Gateway 192.168.1.15

DNS Server 192.168.1.18

IPv6 Configuration

## DECP Server:

DECP Server3

Physical Config Services **Desktop** Programming Attributes

IP Configuration X

IP Configuration

☐ DHCP ☒ Static


IPv4 Address 192.168.1.18

Subnet Mask 255.255.255.0

Default Gateway 192.168.1.15

DNS Server 192.168.1.19

## Website Server:

 websit Server3

Physical Config Services **Desktop** Programming Attributes

IP Configuration X

IP Configuration

☐ DHCP ☒ Static

IPv4 Address

192.168.1.19

Subnet Mask

255.255.255.0


Default Gateway

192.168.1.15

DNS Server

192.168.1.20

## Email services on :

 mail Server1

Physical Config **Services** Desktop Programming Attributes

**SERVICES**

HTTP

DHCP

DHCPv6

TFTP

DNS

SYSLOG

AAA

NTP

**EMAIL**

FTP

IoT

VM Management

Radius EAP

EMAIL

SMTP Service

☒ ON ☐ OFF

POP3 Service

☒ ON ☐ OFF

Domain Name: 

mt.com

Set

User Setup

User

Password

no1

no2

no3

## DECP Server :

DECP Server3

hysical Config **Services** Desktop Programming Attributes

**SERVICES**

- HTTP
- DHCP**
- DHCPv6
- TFTP
- DNS
- SYSLOG
- AAA
- NTP
- EMAIL
- FTP
- IoT
- VM Management
- Radius EAP

### DHCP

Interface: FastEthernet0 Service: ☒ On ☐ Off

Pool Name: N2

Default Gateway: 192.168.2.13

DNS Server: 192.168.1.18

Start IP Address : 192 168 2 33

Subnet Mask: 255 255 255 0

Maximum Number of Users : 216

TFTP Server: 0.0.0.0

WLC Address: 0.0.0.0

Pool Name	Default Gateway	DNS Server	Start IP Address	Subnet Mask	Max User	TFTP Server	WLC Address
N2	192.168.2.13	192.168.1.18	192.168.2.33	255.255.255.0	216	0.0.0.0	0.0.0.0
N4	192.168.4.15	192.168.1.18	192.168.4.44	255.255.255.0	206	0.0.0.0	0.0.0.0
N3	192.168.1.17	192.168.1.18	192.168.1.30	255.255.255.0	226	0.0.0.0	0.0.0.0
N1	192.168.3.11	192.168.1.18	192.168.3.20	255.255.255.0	234	0.0.0.0	0.0.0.0
serverPool	0.0.0.0	0.0.0.0	192.168.1.0	255.255.255.0	512	0.0.0.0	0.0.0.0

DNS Server2

Physical Config **Services** Desktop Programming Attributes

**SERVICES**

- HTTP
- DHCP
- DHCPv6
- TFTP
- DNS**
- SYSLOG
- AAA
- NTP
- EMAIL
- FTP
- IoT
- VM Management
- Radius EAP

### DNS

DNS Service: ☒ On ☐ Off


Resource Records

Name:  Type: A Record

Address:

No.	Name	Type	Detail
0	mt.com	A Record	192.168.4.17
1	www.mastertech.com	A Record	192.168.4.20

## PC config:

 no1 PC2 — □ ×

Physical Config **Desktop** Programming Attributes

Configure Mail ×

User Information

Your Name:

Email Address:

Server Information

Incoming Mail Server:

Outgoing Mail Server:

Logon Information

User Name:

Password:

Save Remove

Clear Reset

## Router CLI :

```
Router>enable
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface Gig0/1
Router(config-if)#ip helper-address 192.168.4.19
Router(config-if)#exit
Router(config)#interface Gig0/2
Router(config-if)#ip helper-address 192.168.4.19
Router(config-if)#exit
Router(config)#
```

## Pc config:

Physical

Config

Desktop

Programming

Attributes

IP Configuration

X

Interface

FastEthernet0

▼

IP Configuration

☒ DHCP

☐ Static

IPv4 Address

192.168.4.55

Subnet Mask

255.255.255.0

Default Gateway

192.168.4.15

DNS Server

192.168.4.18

IPv6 Configuration

☐ DHCPv6

☒ Static

We are add more screen short but time is out running .